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ABSTRACT

The use of formative evaluation in a new set of materials for French language instruction is discussed. The materials, entitled "In the French Body," use videodisk technology to teach both verbal and nonverbal aspects of communication. The technical and pedagogical design of the materials are described, difficulties of using controlled formative evaluation in situations where previously untaught skills (in this case, nonverbal communication) are taught are examined, and the particular advantages offered by this technology in performing controlled formative evaluation are outlined. The evolution of the idea on which the instructional and evaluation methods are based and the process of developing the materials are also chronicled in some detail. Inspiration and techniques were derived from the work of Laurence Wylie on communication within the French culture. Some conclusions are drawn about the lessons learned and the cyclical nature of the curriculum development process, and ongoing activities of the project are noted. (MSE)

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Enabling Technologies as a Force in Curricular Change

by Carolyn G. Fidelman[1]

Teachers and students will soon have a new choice of language learning approach, one that is possible due to recent technological innovations. The work that Laurence Wylie began at Harvard in 1972[2] and that I picked up on in 1982 will finally become available to students and teachers in the form of a method and material called *In The French Body*. In this paper I would like to go over many of the ways in which this project has profited from formative evaluation. I would like to focus particularly on the "enabling" features of videodisc for the teaching of nonverbal communication.

There are two basic points I want to make. First of all, controlled formative evaluation of effectiveness will present unusual problems for projects where previously untaught skills are taught. Second, where materials are not stand-alone instruction but are used as the text or source material in a class, formatively evaluating the user interface and appeal of the materials becomes somewhat complicated. Because these materials are used both by the teacher in classroom presentation and by the student in the classroom and language lab, we need feedback from both groups and in both situations. After briefly summarizing the method, I would like to cover four areas of concern to this project: 1. The need for new test instruments. 2. Student testing. 3. Teacher testing. 4. The testing cycle for an innovative method and material.

INTRODUCTION

Unlike the acquisition of a native language, foreign language instruction has in the past involved the pedagogical principle of deliberate oversimplification. This is because mastering a foreign language is a difficult task: one can only cover so much at once, simplified paths to understanding must be constructed. As a result, students are introduced to an abstracted version of the language they are studying--one which emphasizes vocabulary and grammar. It is thought that by acquiring a lexical basis and a grammatical framework, students learn to communicate in a foreign tongue. By necessity, however, this approach neglects many important aspects of communication: facial expression, hand and body gesture, tempo, tone, and other cultural idiosyncracies.

In The French Body aims at a more holistic concept of language

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instruction, one which embraces both the verbal and nonverbal aspects of communication. At the University of Massachusetts at Boston, we have been using innovative methods, supported by interactive video materials, to give second-year French students a better understanding of what it means to be French. Students analyze and assimilate those features which distinguish native French speakers from non-natives in order to acheive a more natural interactional style. We feel that such skills, which are overlooked in traditional curricula, are critically important in a world of increasing cross-cultural interchange.

The current three-year project has been funded by the Fund for the Improvement of Postsecondary Education (FIPSE). One of its goals is to produce a distributable version of a package of materials called "Dans la peau des français" ("In The French Body") consisting of:

- 1 30-minute videodisc
- 1 diskette containing Hypercard™ stacks to run the videodisc
- 1 student handbook
- 1 teacher's guide
- 1 150 min. teacher training videotape

A second goal is to transfer the method and materials to another language. Because there was a high level of interest from our German faculty, the above package of materials is also being tested and produced for German. It is called "In The German Body" or "In Deutsche Haut Geschlüpft".

The videodisc contains several one-minute segments of natural, unscripted conversation. Using a kind of "method acting" approach, we ask students to memorize and replicate the verbal and nonverbal aspects of these conversations. This exercise forces the students to sharpen their awareness of the communication.

The Hypercard™ stack that drives the videodisc is used both by teachers in the classroom and by students during class and in the language laboratory. The teacher uses the computer/videodisc program in presenting the material, and in coaching students during the three-week learning cycle for each conversation. The Hypercard™ stack also allows the teacher to access and catalogue the behaviors exhibited by the native speakers in minute detail for either research or demonstration purposes. The four main menu choices provided by the program lead to modules that support the four learning stages of the three-week cycle. For example, in the second section where students are learning the verbal language, they may

click on a dialogue line and repeat it until they have perfected the pronunication. If they have a MacRecorder™ microphone input device for the Macintosh computer, they may also practice and get visual feedback on their intonation patterns. In another section of the program, students carry out research projects on the conversations using a special "lab" section of the computer program.

This cultural component can be added as a supplementary activity in the first three levels of language instruction or taught as one intensive course at the third semester/year or higher level. While all the classroom testing up to this point has been carried out at the university level, we see no reason why it couldn't be used at the high school level as well.

[INSERT FIGURE 1 HERE]

Figure 1 illustrates some of the complexity in evaluating this project. Many software/videodisc projects are concerned almost exclusively with the lower right-hand cell, testing of the student use of the materials. The outcomes may very likely be conventional ones that are being automated, "jazzed up" for motivational purposes, or made more efficient by the computer. The method might be the modification of an approach already confirmed as valuable in the classroom. However, in this project there are still many unanswered questions about the methodology, a methodology that depends heavily on the video and software materials. Further, because these outcomes have never been systematically taught or studied, we must be aware of teacher and student attitudes toward the outcomes of nonverbal encoding and decoding proficiency as we introduce them.

NEEDED: NEW TEST INSTRUMENTS

As I mentioned before, Controlled Formative Evaluation will present unusual problems for projects where previously untaught skills are taught. The fact is that we are teaching a few conventional outcomes along with the unconventional ones, for example, in phonetics, listening comprehension or in memorization of a dialogue. However, the innovation is the attempt to teach some new skills in the area of nonverbal communication. The interactive videodisc directly permits this kind of teaching. The implications for evaluation that this brings were not strongly evident at the beginning of this project.

I began this project with a full evaluation plan, approved by the evaluation staff of the funding agency and reviewed by many people during the proposal writing stage. No one including myself ever really picked up

on the fact that this nice detailed plan did very little to validate the most innovative aspect of the project.

Often in education, the technology automates something that was previously taught in some other more manual way either to relieve teaching personnel, to do the work more efficiently, to save time, to provide more individual attention, to provide an alternate form of presentation that appeals to the audio/visual learning style, etc. These are all worthy reasons to develop technology-based learning materials.

But to determine whether a technology goes further to "enable" there are some questions to keep in mind before and during evaluation of the actual materials:

1. Is there some kind of new outcome?
2. Is this new outcome of value?
3. Is the proposed method of acheiving that outcome effective?

I won't spend a lot of time here to establish the value of the outcome and the effectiveness of the method used in this project. Most language teachers will agree that better communication in the target language is a desirable goal. But the specific intended outcome we recommend, improved **nonverbal decoding** and **encoding**, is not an explicit part of the ACTFL Proficiency guidelines, for instance, and has never been a part of any language curriculum known to the author. The result is that there are no established cross-cultural nonverbal decoding or encoding tests. So midway through the project, the entire issue of formatively evaluating this aspect of the method had to be reconsidered. We had to develop our own nonverbal decoding and encoding tests.

The educational research question is: Do students taking this course acheive significantly more sensitivity to the nonverbal signals of native speakers of the target language than those in the control group? From this we step back to ask the more basic research question: Do Americans actually interpret the nonverbal cues of native speakers any differently than do other native speakers of the target language? In a thorough search of the literture in social psychology and nonverbal behavioral studies I found only one study that addressed this basic question using a validated test instrument. In 1979 Rosenthal et. al. tested individuals cross-culturally for decoding ability using the PONS (Profile of Nonverbal Sensitivity).[3] Using the model of the PONS test along with some guidance from Robert Rosenthal, it's author, I developed a version for French and a version for German.

In this thirty-minute test, the subject watches a video which will show 139 approximately one-second examples of behavior at seven-second intervals. Three seconds before each example, the item number is displayed and the subject hears a "ding" as a cue that the next example is imminent. After viewing or hearing the example, subjects determine which of the two sentences provided for each item describes that item most accurately. Then they circle the correct answer on the answer sheet.

As I mentioned, they may "hear", or "see", or "hear and see" an example. The examples are delivered in the following five ways: voice only (muffled so that only intonation is perceived); face only, voice and face, body, voice and body. This division was made so that we could determine subscores for the various channels of communication. The matrix in Figure 2 goes further to show the four affect categories used to identify the **general** tone of a communication and the various sentences that might be used on the answer sheet to identify that tone for the subject.

[INSERT FIGURE 2 HERE]

So far the French and the German PONS tests have undergone the following development cycle:

1. Initial development to create items using three native speakers to identify negative/positive affect as well as reactive/proactive qualities.
2. Use of three native speakers to apply appropriate correct answers to the items and good distractor statements.
3. Testing with groups of approximately 50 native speakers in the foreign country.
4. Item analysis of results of 3. and a consequent paring down to both make it shorter (target=30 min) and improve it's reliability alpha (result=.86).
5. The two tests are currently being tested with a control group of Americans who have had little or no exposure to the target language or culture to establish baseline differences. This helps us to answer the basic research question.
6. In the next few years, we plan testing of students taking this course and students in control courses at same level. We hope the results of this testing will answer the educational research question.

There are also plans for an encoding test in which student performances on video are evaluated by a panel of native speakers. In this testing, we need a native speaker who can attend videotaping sessions both at the beginning and at the end of a semester. Another control is that the location of the videotaping and camera angle must be identical in all videotaping. Students in the experimental and control classes will be videotaped for five

minutes each in spontaneous conversation with the native speaker at the beginning and the end of the semester. A particular student's pre- and post- tapes will be edited as a sequence. After that, however, the order of student appearances on the edited tape will be randomized as to whether they are from the experimental or control group. This videotape will then be shown to a group of native speakers who will judge, via score sheet, the student's improvement.

The "enabling" characteristic of this project brought forward the lack of tests or even appreciation for what is undoubtedly an important part of communicational proficiency. By the time we ourselves fully appreciated the impact of this issue, however, our evaluation budget had already been well established and the project well underway. What we had inadvertently done was to create an evaluation plan based on the kind of "automation" model I noted above. It was a straightforward plan that involved using established proficiency tests for grammar and listening comprehension, and observations of student and teacher use. The latter, which will be discussed in sections two and three of this paper, went more or less as planned. The proficiency testing was another matter. We stepped back to re-evaluate our evaluation strategy when we began to see that the conventional tests were yielding mediocre results while students' communicational performances clearly indicated progress. In the end, approximately half of the funds that would have been spent on classroom testing were spent instead on developing the PONS test. This could validate the gains that students make in nonverbal comprehension skills. While we are glad to have finally found the proper emphasis for our testing effort, it has meant some rescoping of the three-year project's evaluation agenda. By sharing this bit of process with you, I hope to help others understand the impact that the enabling characteristic, where it exists, can have on a technology-based project.

TEACHER TESTING

Where materials are not stand-alone instruction but are used as the text or source material in a class, formatively evaluating becomes a bit more complicated. Because these materials are used both by the teacher in classroom presentation and by the student in the classroom and language lab, we need feedback from both groups and in both situations. The three response groups for formatively evaluating the video material and the software were teachers, students and various experts.

[INSERT FIGURE 3 HERE]

From 1983 to 1986, I observed Laurence Wylie teach the course using film technology. It was that observation that was the genesis of the current project. At the time, Professor Wylie used a specially modified Bell&Howell projector to present the material to students. The film analysis technique (developed by William Condon, a pioneer in interpersonal synchrony research) required the modification to play frame-by-frame motion with sound. Needless to say, any teachers who entertained the notion of teaching with Wylie's techniques were immediately put off after seeing the equipment set up. Additionally, one could expect to pay yearly for new copies of the film as they wore out very quickly under the intense use. In other words, the method was not **feasible** under the old presentation system.

There were also questions of user-friendliness as even the expert film user, Wylie, had much trouble getting the system to work in class. At first I tried doing a version of the filmed material on videotape in a fourth semester French course I taught in 1983. It was less satisfactory than the film since there was no way to do the film analysis technique (no accurate search mechanism and the sound shuts off at slow speed).

Fortunately, in the next few years, I learned about videodisc while working at the MIT Media Laboratory and during subsequent work in developing interactive training for IBM. By 1988, I produced the first prototype videodisc version of Wylie's filmed material. The videodisc is the perfect medium for this kind of material for the reasons detailed on the chart in Figure 3. This also summarizes the advantages and disadvantages of the various media we have tried over the years.

Once I found the proper medium for this material, I could really begin to fine-tune the interface between material and teacher by watching myself and other teachers use it while teaching. I conducted a kind of self-formative evaluation in which I gradually added the features to the Hypercard™ stack running the videodisc to meet my needs as teacher. For example, one of the most important findings by my students as well as myself was that the conventional representation of the dialogue was inadequate. In presenting the nonverbal aspect of the communications, I kept needing to refer to "phrases of nonverbal behavior" which might begin somewhere in the middle of one interactant's dialogue line and end during the first words of the other interactant's line. A new Timeline version of the scripts was soon programmed in the software and also distributed to students in paper form.

Eventually, I did have two other teachers try out the method, one at my campus at UMass/Boston and another at the University of Rhode Island. I observed their reactions to the use of the equipment and the software throughout the semester. An example of the improvements that came with that observation was the addition of keyboard correlates to the mouse selection process. As it turns out, when you are teaching, pressing a key on the keyboard requires less of a break of eye contact with the students and refocusing of the eyes than stooping down to move the mouse to the proper coordinates and clicking.

In the final interview, these teachers expressed no problems with the software. One of the teachers was quite computer literate while the other was rather phobic. The early version of the software that they were using included no Help screens. After receiving personal training in the use of the program, they both succeeded equally well in its use. In the final version of the software, I am implementing Help screens at every point in the program. My hope is that these additions along with the program tutorial section of the teacher's manual and teacher training video will waylay any teacher's need to call my "customer assistance helpline".

We are currently moving from a stage in the project where video production has had priority and where beta-testing has been sparsely embedded in the schedule. As we move to the pre-release of the materials, the improvement of the software and teacher training material will become the focus. We are currently setting up a 1-800 line using part of the proceeds from the sale of the materials. By making it easy for teachers to call, I expect to receive input from teachers about their use of the materials and method. I also plan to initiate calls to survey the teachers' use of the materials and method.

STUDENT USE OF THE SOFTWARE

Let us turn back now to the genesis of the videodisc idea. For students taking Laurence Wylie's course "Communication With The French" in the late '70's and early '80's, the use of filmed conversations between native speakers was a novel one. They were happy to have access to real examples of communication after what many had heard in the conventional language laboratories. They were accepting of the occasional equipment breakdowns and of the time-consuming threading and search process for the films. For these students, the disadvantage of film was that they had no access to the material outside of class.

In his original course, Wylie dealt with this the best way he could by

providing audiotapes for students. But audiotapes only go so far when one is dealing with nonverbal behavior. These days we could propose videotapes to students. (I have no objection to students who want to make a videotape copy of the videodisc for use on their VCR at home.) Still, when we made this videodisc/computer system available to the students in the language lab, we found that they couldn't get enough of it. One of the complaints often listed on their course evaluations was that the one hour per week allotted to them was insufficient. After several weeks of teaching the first course where the system was used, I abandoned the practice of monitoring their lab attendance. They all found attendance indispensable. With this system, students can meet and study the dialogue together (they work in pairs) or alone with the computer acting as their partner. Also, they can study more efficiently with the random access control that the computer gives them.

During my first three semesters using the Hypercard™/videodisc materials in 1988-89, I used a paper form with screen dumps of every screen of the Hypercard™ program to get students' feelings about the screen design and choices. The program was restructured according to the students' requests and new features were added. As I mentioned before, the Timeline was a result of this questioning. Interviews with beta-site students showed that they were very happy with the program, as well. I never received a single phone call from students saying the machine had crashed or that they had gotten stuck. All students were asked for their general reactions on course evaluations at midsemester and end of semester. I sense that both the novelty of the videodisc and the access to communicative aspects that it provided contributed greatly to their overall satisfaction. Perhaps as the novelty wears off, future students will become more demanding of the system, materials, and interface. For now, it seems that this design works.

STUDENT EVALUATION OF VIDEO MATERIAL

For the final French videodisc, I incorporated a mixture of the opinions of a sixth semester French class at the University of Massachusetts at Boston and those of a panel of five experts to determine which 11 of the 160 conversations that were taped in Paris last summer should be included on the disc. Here's a summary of the process:

The selection for this French videodisc was made by a panel of four experts.[4] Before submitting the choice to the experts, I reduced the choice down to about 50 by eliminating conversations with obvious technical problems or where the interactants were obviously nervous. The panel of

experts, who were supplied with videotape and transcripts, then selected approximately 25 conversations that met certain criteria. The criteria were: natural sounding speech, lack of nervousness, interesting or common topics and vocabulary, natural postures and distancing, good interactional rhythms, use of typically French or German movement.

For a certain portion of the French videodisc, I conducted a survey of 15 American students in a French Conversation course[5]. After the expert panel evaluation, a videotape was made of the 25 best conversations and supplied to the French conversation class along with transcripts and two rating sheets.

The night before a viewing was to take place, students were to read the transcripts and rate them on four items: appeal of the left interactant; appeal of the right interactant; difficulty of the vocabulary and structures; overall appeal of the conversational content. Once in class, students viewed the videotaped versions of those same conversations and rated their audio/visual impact along the same four lines.

Note that students were not asked to rate a conversation on its usefulness in learning nonverbal or communicative competence. Such a rating could only occur in an "In The French Body" class which would be using the material in the way it is meant to be used. Since students in that kind of class spend a month on each conversation, it would take a group of the same students eight semesters to properly evaluate the short list of 25 conversations. There was no such course being conducted during the two semesters that video post-production was taking place. We opted instead to get some very general reactions to the conversations in order to see what would make a student like or not like a conversation on first exposure. I would then factor that information in when making the final editorial decision. Along with collecting the students' numeric ratings on paper, I attended each class session where the video was shown in order to get an informal sense of the students' reactions.

What I found was that **appeal** in it's usual sense was not an appropriate measure here. The numbers on the rating sheet were only of help for positive reactions. For one conversation between two pregnant women who were discussing the upcoming births of their babies, both experts and students agreed unanimously on the naturalness, appeal, and positive interactional qualities of the conversation. But when students reacted negatively, it sometimes meant that issues of cross-cultural misunderstanding had surfaced as in the following two examples.

In one conversation, two high school senior girls are commenting on each other's clothing. At one point, the girl on the right says "But, I don't like the color of your pullover. It doesn't go with your shoes." The American students reacted rather negatively to this. In the classroom discussion, one of the students remarked "That wasn't very nice." Another student thought that the girl might have been acting up for the camera. The fact is that French people are often very free in critiquing others on their clothes, hair, cooking, etc., especially in matters of style. They feel they are doing a favor to help the other person get on the right track. The recipient of these comments is often quite grateful for the feedback. At the very least, they are not too offended. In American culture, especially between girls, what is important is to protect and shore up the self-image of the other person.[6] The very thing that probably lead to a negative assessment of this conversation by the students is a frequent source of cross-cultural misunderstanding between French and Americans.[7] The teacher who shows this conversation will inform the students of the cross-cultural misunderstanding that this conversation can help them to overcome.

In another interesting case, the two male interactants kiss each other once on each cheek upon meeting. Nothing much was said about this in the classroom discussion as the teacher in this class had already told the students that such greetings between males were not uncommon in France, especially among relatives. But on paper, the ratings were somewhat polarized. Students seemed to give it either a 5 (excellent) or a 1 (of little value). This indicated to me that it stirred some issues for people that perhaps could be safely addressed in a French class. For this reason I included this conversation in my final choice, too.

ADVISORY BOARD AND OTHER EXPERT INPUT

The enabling characteristic of the technology combined with the innovative approach and outcomes, has made expert evaluation a special necessity in this project. (The previous example illustrates one way in which experts were pulled in.) Wylie's ten years of self-formative evaluation improved the technique for production and post-production of the visual component of the materials and added many features to their classroom use. When I came along, I began to address the issue of feasibility of the materials and system for other teachers. In all, these materials have been prototyped six times previous to the pre-release coming early this summer. Better directing, long shot and close-up variations, time limits on conversations, color film and the use of videodisc rather than videotape or film are just some of the improvements that have

occurred over the years. These came from my own judgement, that of Laurence Wylie, of a panel of six advisors from UMass/Boston, and from the many students and professionals who have seen the materials over the years.

CONCLUSION

Here, we are dealing to some extent with a classic chicken and egg situation. If it is true that the outcomes can't be taught without the technology, then the materials have to be developed in some form first for the cycle of testing and evaluation to begin.

[INSERT FIGURE 4 HERE]

In order to get conclusive data on the effects one needs appropriate test instruments. Ultimately, one needs large experimental and control groups. Now that the test instruments are in place, we can work in that direction. Also, I have tried in many ways to seek and to incorporate the opinions of the two target audiences of these materials: the teachers and the students.

I tend to think of this project as moving in a spiral. At each new stage it becomes more and more practical to get input from these groups. What might have been considered summative from Stage Three turned into needs assessment for Stage Four. Here is a summary of the stages shown in Figure 4:

1. In its first iterations, Laurence Wylie worked with small groups using old technology (film). Many lessons were learned about both the method and materials.
2. In its second generation, the method was used by a new teacher with a prototype of the materials on videotape. Videotape didn't work satisfactorily.
3. In its third generation, a videodisc prototype of the materials was produced. New classes taught with the potentially more distributable medium. Many lessons were learned about both the method and materials.
4. In its fourth generation it got funded. Two new teachers were engaged and issues of teacher training began to be addressed. Improved prototypes were used.
5. As a result of the funded project, limited distribution begins this year, wider-scale appeal will be observed, teacher training will improve,and a 1-800 number will allow input from teachers and students. The use of the PONS as a test of decoding proficiency and the video encoding test that was briefly described will enable testing of intended outcomes.

6. In order to continue the spiral outward to the wider educational audience in a positive way, more research is needed.

We will wait a year to see the outcome of this limited distribution. If there is an interest, we will continue to improve and disseminate this material and method.

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[1]Carolyn G. Fidelman (Ed.M. '88 in Interactive Technologies, Harvard , M.Ed. '78 in Foreign Language Education, University of Georgia) is a Project Director for the program in Communication Technology, University of Massachusetts at Boston.

[2]Wylie, Laurence. "Language Learning and Communication." *The French Review* 58, 6 (1985): 777-85. This article provides basic information about the theory and practice of Wylie's course "Communication With The French" which is the primary model for "In The French Body" and it's core exercise which we now call "The Wylie Exercise."

[3]"Robert Rosenthal et al. "Cultural Variations in the perception of Nonverbal Communication" in "Measuring Sensitivity to Nonverbal Communication: The PONS Test" in *Nonverbal Behavior: Applications and Cultural Implications.* Edited by Aaron Wolfgang. NY: Academic Press, 1979.

[4]The four experts for the French videodisc were: Carolyn Fidelman, Laurence Wylie, Odile Ledru-Menot, Isabelle Bennet. The five experts for the German videodisc were: Carolyn Fidelman, Laurence Wylie, Hannelore Crossgrove, Tatjana Meschede, Lynn Dhority.

[5]Thanks to Brian Thompson who allotted the time in his fifth semester French Conversation class, Spring Semester 1992, for this student evaluation.

[6]Tannen, Deborah, *You Just Don't Understand: Women and Men in Conversation.* New York: Ballantine Books, 1990.

[7]Carroll, Raymonde. *Cultural Misunderstandings: The French-American Experience.* trans. Carol Volk (Evidences invisibles, Editions du Seuil, 1987) Chicago: University of Chicago Press, 1988.

	Outcomes	Method	Materials
Teacher	of value?	effective?	feasible? appropriate? teacher-friendly?
Student	desirable?	motivating	user-friendly? appealing? (class / lab)

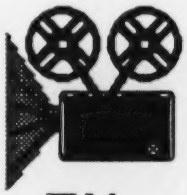
Evaluation Matrix for *In The French Body*

Figure 1

	Proactive	Reactive
Positive	Compliment someone Tell a story Express satisfaction	Agree to something Express surprise Thank someone
Negative	Scold someone Tease someone Interrogate someone	Be disgusted by Whine about something Make excuses

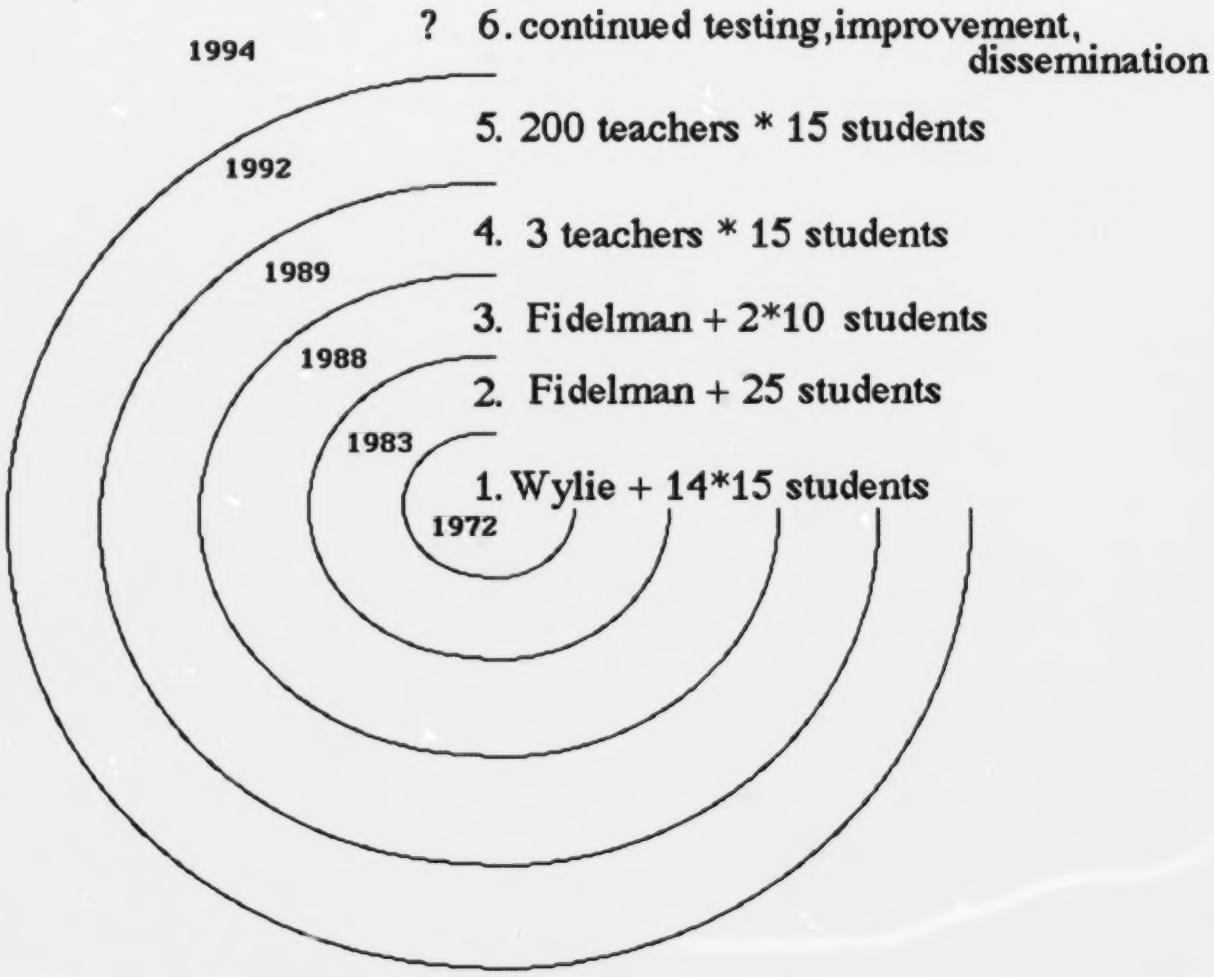
Affect Matrix for French and German Profile of Nonverbal Sensitivity with examples

Figure 2

ADVANTAGES	DISADVANTAGES	
was available in the 70's	film wears out	 Film
can go frame-by-frame	machine must be modified for this purpose	
	projectors phasing out in school a/v	
cheap to produce	no frame-by-frame	Videotape
cheap to replicate	slow play not on all players	
excellent installed base of players	sound shuts off at slow	
teachers trained in its use	frustrating search process	
random access to segments	more expensive	Videodisc
frame-by-frame play	some teacher training needed	
slow play at various speeds	not a good installed base of players	
sound can be on at slow		

segments can be catalogued ... if computer (another expense)

Media Choices
Figure 3



Stages of Development
In The French Body

Figure 4